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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,760	06/06/2005	Fufang Zha	2002P87059WOUS	5173
28524 7590 10/19/2009 SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830			EXAMINER MENON, KRISHNAN S	
			ART UNIT	PAPER NUMBER
			1797	
			MAIL DATE	DELIVERY MODE
			10/19/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/537,760

Applicant(s)

ZHA ET AL.

Examiner

Krishnan S. Menon

Art Unit

1797

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-14 and 17-56 is/are pending in the application.
- 4a) Of the above claim(s) 23-34, 36-39 and 49-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) see OA is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

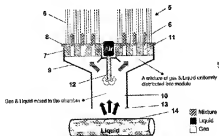
- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-3, 6, 10-14, 17, and 20-56 are pending as amended 9/21/09 in the RCE of 6/15/09; claims 23-34, 36-39 and 49-53 are withdrawn from consideration.

Claims 1, 12, 35, 40 and 41 are independent among the elected claims.

Applicant had elected the species represented by figure 2 (presented below) for prosecution in response to the restriction requirement.



Claim Rejections - 35 USC § 103

1. **Claims 1-3, 6, 9-14, 17, 20-22, 35, 40-42 and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heine et al (US 6,126,819) in view of Shimizu et al (US. 5482625).**

Hein teaches the membrane module as claimed – see the annotated figure 7 presented below. Heine teaches feeding a mixture of gas and liquid into the header chamber. The header chamber is an open-ended mixing chamber for gas and liquid – both gas and liquid are fed into the header chamber. See paragraphs at column 5, line 56, and column 9, line 12, for air inlets.

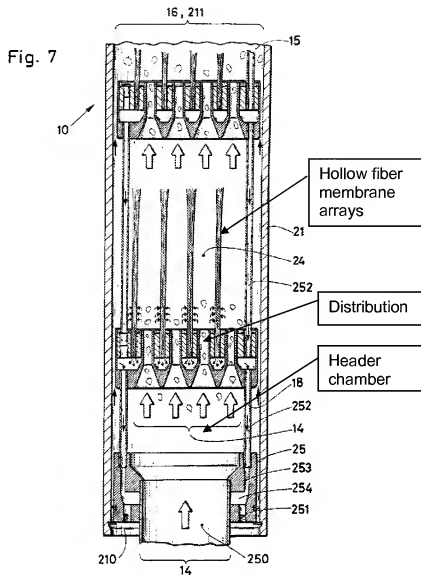
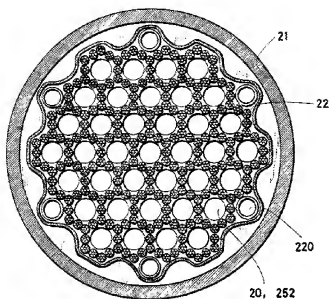


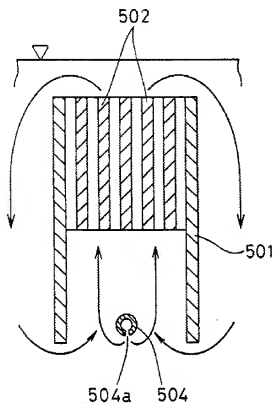
Figure 3 of Heine reproduced below shows a 'meander' shaped closure element, which would correspond to the applicant's claimed 'clover-type' manifold. The closure element contains a "pot" which has fluid distribution apertures 20, and potting compound supporting the hollow fibers 13. Thus within the manifold 22 is a header having membranes 13 in a pot and aeration holes defined therein. See column 8, lines 8-39.



Applicant provides no particular definition for "clover-type". However, clover-shape is well known and is a shape with three or four lobes as in a clover leaf. Heine's above picture has a meander shape with a lot more lobes than a clover. However, the meander shape or the clover shape is only simply a difference in shape, which is not a patentable limitation. Changes of size, shape, etc without special functional significance are not patentable. *Research Corp. v. Nasco Industries, Inc.*, 501 F2d 358; 182 USPQ 449 (CA 7), cert. denied 184 USPQ 193; 43 USLW 3359 (1974)

Figure 7 also shows multiple headers arranged linearly as one above the other.

Heine does not teach a gas inlet arranged 'downward' as claimed. Shimizu teaches a submerged flat membrane system having aeration from the bottom, with the air inlet directed downward – see the figure reproduced below.



Shimizu teaches:

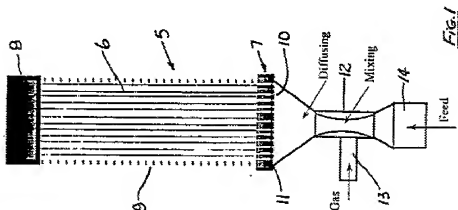
"This arrangement is advantageous in that because bubble of aeration gas spurted downward from the diffusing port rises without generating swirl even when a distance between the lower end of the membrane cartridges and the diffuser is short, such bubble is evenly supplied in the gaps between the membrane cartridges fast enough to prevent sludge from being adhered to the surface of the membrane."

It would be obvious to one of ordinary skill in the art at the time of invention to combine this teaching of Shimizu in the teaching of Heine to have the air inlet set inside the chamber downward to have the advantages taught by Shimizu. Having an air line into the chamber to provide for the air outlet, and how to place the air line with respect to the header or the membranes would be obvious to one of ordinary skill, and could be designed based on convenience.

2. Claims 1- 3, 6, 9-14, 17,20--22, 35, 40-48, and 54-56 are rejected under 35

U.S.C. 103(a) as being unpatentable over Zha et al (US 2001/0047962) in view of Shimizu.

Zha teaches the membrane module as claimed – see the figures, particularly, figures 1, 2 and 9. the opening sizes in the tube potting heads are in the range as claimed (paragraph 0020). Deflector for the gas – see the jet assembly 57 described in paragraph 0061. Packing density as claimed – paragraph 0019. The open-ended mixing chamber as claimed –s identified in the figure below.



Having the air nozzle inverted (upside-down) is obvious over Shimizu, as shown above in rejection 1 above. The gas source and the gas source being integral or among the porous membranes - see the figures 2,7, and 8 in the Zha reference - the structure of the gas source in these figures appear to be similar as in instant fig 2, except that they are upward.

Having integral gas source to the header is also taught by Espenan US 2002/0189999 - see figures. Thus having gas source as "integral" to the header is not inventive, and is well known.

The "clover-type" is only a change in shape without any particular function or advantage, and is not patentable as shown in rejection 1 above.

Argument that one would not replace the venturi of Zha with the air diffuser of Shimizu is not persuasive: Zha teaches jet type air nozzles as well (see paragraph 0046, on top of page 4) which force gas into liquid (unlike the venturi, which pulls gas by creating a vacuum) and such nozzles of Zha could be inverted in the fluid flow path to obtain the same benefits taught by Shimizu, which includes better distribution of air as well as prevent the nozzle from clogging by the settling particles in water, particularly when the air flow is stopped).

3. Claims 1- 3, 6, 9-14, 17,20-22, 35, 40-48, and 54-56 are rejected under 35

U.S.C. 103(a) as being unpatentable over Zha and/or Heine in view of Shimizu as applied above, and further in view of Henshaw (US 5,783,083).

Some of the claims in the above list differ from the teaching of Heine and/or Zha in having plural modules arranged in differently shaped manifolds. Henshaw teaches plurality of submerged membrane modules arranged in manifolds to have enlarged capacity treatment systems. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Henshaw in the teaching of Hein or Zha for the purpose of having larger treatment systems/reactors as taught by Henshaw.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1- 22, 35, 40-48, 54-56 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the pending claims of copending Application No. 11/025,418 in view of Shimizu. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '418 application recite the limitations of the instant claims. Having the air inlet downward is not patentable as shown above in rejection 1.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 9/21/09 have been fully considered but they are not persuasive: they are mostly addressed in the rejection.

Arguments about the 'clover-shape' are not commensurate in scope with the claims and applicant's disclosure – there is no disclosure on the definition or structural details or advantages of the clover-shape. "Clover-type" is confusing because it does not provide any particular structure.

The inverted air nozzle has been addressed with the Shimizu reference with sufficient motivation to combine and applicant has not provided any secondary evidence to overcome the prima-facie case.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Krishnan S Menon/
Primary Examiner, Art Unit 1797